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Applying the 5E creative cycle in discovery learning of natural science to develop students' natural finding capacity in Junior High School

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Abstract
Discovery teaching has been and still is a research issue of interest to many domestic and foreign education researchers. This is a teaching method in which students learn science using the same methods, attitudes, and skills as science when conducting scientific research. The 5E discovery learning process has been proposed by researchers education research in the world, widely used in developed countries. This article is about applying the 5E creative cycle in discovery learning of natural science to develop students' natural finding capacity in junior high school. Teaching practice shows that the application of the 5E teaching model in teaching and discovering natural science is very effective at junior high school. Hopefully, this article will be a reference for teachers when apply this teaching model to teaching in high schools.

Keywords: Discovery Learning, Natural Science, Natural Finding Capacity, The 5E Creative Cycle

1. Introduction

The discovery learning model is rooted in observations of how people learn. As early as this century, Herbart's (1901) [1] ideas about teaching included starting with the student's interest in the natural world and in interactions with others [1]. Teachers construct their own learning experiences to expand on concepts that students already know and to explain knowledge that students cannot solve. Students then apply the concepts to solve new situations. Thus, teachers have a connecting role between reflective thinking and scientific research (Bybee, 1997) [2]. Discovery teaching has become a central issue in the reform of science education in the United States. In the 1950s, discovery teaching was seen as an approach to teaching science subjects. Educators have been actively developing discovery learning since the 1960s and continue to this day. Currently, discovery teaching is being widely applied in the system of pre-university schools that teach science subjects. The National Research Council (NRC) of the US (1996) [3] also affirmed the role of discovery teaching and suggested the development of discovery teaching in schools [3]. To date, the nature of discovery teaching is still controversial and even this term is not widely used in educational literature. The term can be used in a variety of ways, but all reflect research-based learning and include "inquiry-based teaching", "research-based teaching", "research-based teaching", and "research-based teaching". inquiry" and "inductive teaching and learning". The 5 E discovery teaching process has been proposed by educational researchers around the world. However, this model has not been widely popularized in Vietnam. In 2011, Le Trung Tin applied the 5 E process in teaching transformations [4]. Author Trinh Nguyen Giao (2012) also organizes teaching activities for the Genetics section according to the 5 E process to improve teaching quality [5]. However, both of the above authors have not proposed a new discovery teaching process oriented towards capacity development for students. Although this teaching method is becoming quite popular at all levels of education in the world, there are still few studies on exploratory teaching to give an overview. The 5E teaching model consists of 5 stages (corresponding to 5 acronyms starting with the letter E). The article proposes a process to build a process of teaching Natural Science according to the 5E teaching model in secondary schools and apply it to teaching oxygen and air topic.

2. Content

2.1 Discovery, Discovery Learning

2.1.1 Discovery concept

As defined by the US National Research Council (2000) [6]: Scientific discovery refers to the different ways in which scientists study the natural world and propose explanations based on it. on the evidence obtained from their studies. The term "discovery" is used in two different ways in the standards. First, it refers to the capacity students need to be able to design and

conduct scientific research and to understand the nature of scientific research. Second, it deals with teaching and learning strategies that allow scientific concepts to be mastered through research. In this way, the standards show the relationship between learning scientifically, learning to do science, learning about science

2.1.2 Discovery learning

Through the literature review [5, 10, 13, 14], we found that discovery learning is a teaching method. Discovery teaching is a way of organizing teaching, in which learners experience through discovery activities under the direction of teachers to discover new knowledge. In teaching, explore through scientific topics. Students experience the scientific research process under the direction of the teacher in order to discover hidden knowledge in the research object.

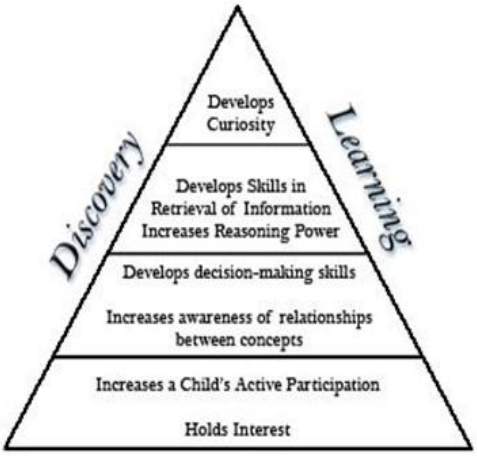


Fig 1: Discovery learning

2.1.3 Types of discovery teaching

The authors Staver and Bay (1987) [7], Herron (1971) [8] gave the following types of discoveries:

- Structured discovery: In this form, the teacher gives a problems for students and outline solutions to implement.
- Guided Discovery: In this format, the teacher provides questions to stimulate self-inquiry but students orient themselves to discover the answers to these questions.
- Open exploration: In this form, students construct their own questions and experience to find answers

Table 1: Types of Discovery Activities

Types	Activities of teachers	Activities of students	Discovery teaching
1	List activities for students to do	Work under the guidance of the teacher to achieve the goal	Full Guided Discovery
2	Ask a problem, leave the solution open	Find your own way to solve	Partial Guided Discovery
3	Choose the starting situation or accept the student's choice	Identify the problem in the situation, find the solution on your own way	Explore freedom

2.2 Teaching model 5E

The 5E teaching model was proposed by Rodger W.Bybee and his associates in 1987. After a period of building and testing, the 5E teaching model was well known in 2006, with the theme "The BSCS" 5E
Intructional Model: Origins and Effectives" at the National Institutes of Health in the United States.

2.2.1 Features of the 5E teaching model

The 5E teaching model consists of five phases: Engage, Explore, Explain, Elaborate and Evaluate. 05 stages are built on the theory of cognitive construction of the learning process, whereby students build new knowledge based on previous knowledge or experience (Nguyen Thanh Hai, 2019) [9].

Fig 2: The 5E Model Structure

The 5E teaching model includes the following characteristics:

- **Engagement:** Engagement is the first and important stage in the learning process to stimulate students' interest in learning. The connection here is the connection between students and the lesson, creating learning motivation for them. Normally, there are 02 situations that are often applied in this stage: Derived from knowledge gaps or from mistakes of students to build complete and accurate knowledge. Besides, a number of activities, movements, collective games, etc. also contribute success in this phase.
- **Exploration:** In this stage, the person who directly surveys is students, they have the opportunity to directly participate in situations, work with equipment, tools, practice, ... to collect information. collect information. Students will discover learning content through problem solving, scientific discovery, observation, simulation of phenomena or conducting experimental and practical activities,... Experiential activities help Students use their existing knowledge and skills to create new knowledge based on the guiding questions of the study sheet and the adjustment of the teacher. During the survey phase, the teacher acts as a consultant, providing opportunities (space and time) for students to experience.
- **Explanation:** Teachers create opportunities for students to explain the results of experiments, phenomena, etc. performed at the survey stage. Then, the teacher analyzes and makes conclusions. Also in this stage, the teacher introduces new terms, concepts and formulas, etc., helping students to connect and see the connection with previous experiences.
- **Elaborate:** At this stage, teachers need to create for students to apply the knowledge they have learned, practice their knowledge and skills in specific situations

(encourage practical situations). Teachers help students practice and apply the knowledge they have learned in the explanation step, helping students deepen their knowledge, become more skillful and know how to apply it to different situations and circumstances. If the selected topic is scalable to the following topics, teacher.

You can ask students to present solutions or predictions to consolidate new knowledge and prepare for the next topics.

- **Evaluation:** The evaluation phase has two purposes, which is to record the results and adjust for the next lessons. Teachers record the results of the formation and development of knowledge, skills and attitudes of students after the lesson. Besides, teachers need to make appropriate adjustments to each of their students in the next lessons. The evaluation phase is not necessarily the final stage in the process, teachers can evaluate through the learning process of the students.

Students in class. Teachers observe students through small or large group activities to see the interaction in the process study. Teachers should not fixate on one assessment method, but should flexibly use different assessment methods in the learning process (Duong Giang Thien Huong, 2017; Nguyen Thanh Hai, 2019) [9, 10],...

2.2.2 The effectiveness of the 5E teaching model

* Effective in countries around the world. The 5E model has been somewhat effective for developed countries in the world, especially the United States, the country that "generated" the term 5E. Nguyen Thanh Hai has cited a series of international publications about the benefits of the 5E teaching model for American education (Nguyen Thanh Hai, 2019) [9]. Ergin (2012) [11] stated some initial effects of this model and affirmed: When learning under the 5E model, students use technology devices more effectively and improve their research needs. With a survey of 30 primary school students about their capacity to reason through the use of the 5E teaching model, the results show that the 5E model has a positive impact on reasoning capacity, internal motivation, and behavior. vi and academic achievement of students (Siwawetkull, Koraneekij, 2020).

* Effective in Vietnam. Vietnam has initially applied the 5E model to research and teaching and obtained some results such as: Vu Thi Minh Nguyet (2016) affirmed: Applying the 5E teaching model is a way of planning Lessons with clear activities of teachers and students, helping science subjects to be highly effective

The 5E model gives teachers a systematic and comprehensive view, which helps in the implementation of diverse content. In the process of teaching science subjects as well as engineering and technology subjects, the lessons need activities about experimentation, in addition, time to apply thinking skills such as: problem solving, decision making and critical thinking. Therefore, the application of the 5E teaching model will help teachers find the central content of the lesson and lead students to systematically take steps to learn.

2.3 The natural inquiry capacity

2.3.1 The concept of the natural inquiry capacity

In the general general education program and general education program in natural sciences of the Ministry of Education and Training of Vietnam, announced in December 2018 [12, 13] have identified the qualities and required competencies of middle school students including Natural Science Competence. Natural Science Competency is a specific capacity, formed and developed for students in the process of teaching natural science subject, including the following 3 components: Natural science awareness; learn about nature; apply acquired knowledge and skills.

According to [10, 14], the **natural inquiry capacity** is "the capacity of learners to ask questionable questions about nature, to formulate and implement a plan to explore the problem, to write and interpret the results, from which to draw conclusions. experience and apply knowledge in practice".

2.3.2 Structure of natural inquiry capacity

The manifestation of the natural inquiry capacity is to be able to perform some basic skills to understand and explain things and phenomena in nature and life; demonstrate problems in practice with scientific evidence. The specific criteria and expressions are presented in Table 2 [14].

Table 2: Components and criteria of *natural inquiry capacity*

Components	Criteria
Propose a problem, ask a question	1. Detect and propose problems.
	2. Ask questions about discovery problems.
Make judgments to build hypotheses for discovery problems	3. Analyze to identify the relationship between relevant knowledge and problems in learning and problems in practice.
	4. Make judgments and build hypotheses.
Make a plan and execute the plan	5. Make an experiment plan or observe the model, experiment video...
	6. Conduct experiments, observe, record and describe experimental phenomena.
	7. Analyze, interpret the data and draw conclusions.
Present the results of the problem of finding, discovering, expanding the application of knowledge into practice and evaluation.	8. Present the results.
	9. Expand the application of knowledge into practice.
	10. Evaluation of research results.

2.4 Applying the 5E teaching model in teaching Natural Science in junior high schools

2.4.1 Features of the 5E model in teaching in junior high schools

In the process of teaching Natural Science subject to the 5E teaching model, the main features are as follows:

- The sequence of stages in the 5E model remains the same.
- Use study cards in the teaching process to ensure on time.

- The academic and experimental knowledge that students can learn on their own at home should be included in the extended activities at home.
- Flexibility in assessment forms. Assessment through quick quizzes at the assessment stage. Evaluate the learning and teamwork process, evaluate the products obtained from activities at home.
- Use supporting tools such as: computer room, projector, demonstration experiments, simple experiments, handson and minds-on.

2.4.2 The process of building the teaching process of Natural Science subject to the 5E teaching model in junior high schools

To build the teaching process of Natural Science subject to the 5E teaching model, we follow the following steps

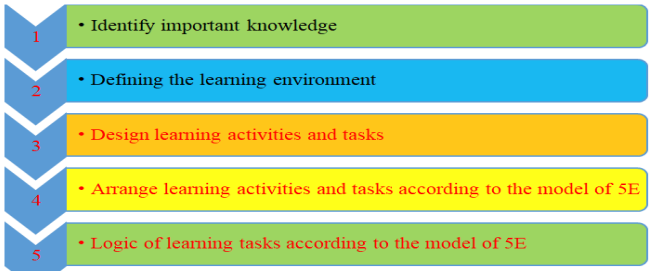


Fig 3: Construction progress of Natural Science subject to the 5E teaching model

2.4.3 Illustrated lesson

Subject: Oxygen and Air

I. Objectives

1. Capacity

1.1 Natural Science Competence

1.1.1 Natural science awareness

- State some properties of oxygen (state, color, solubility, ...).
- State the importance of oxygen to life, combustion and fuel combustion.
- State the composition of air (oxygen, nitrogen, carbon dioxide, noble gases, water vapor).
- Describe the role of air in nature.
- Describe the symptoms of air pollution.

1.1.2 Learn about nature

- Conduct experiments to understand the role of oxygen in combustion.
- Conduct a simple experiment to determine the volume percent composition of oxygen in air.

1.1.3 Apply knowledge and skills learned

- Explain the causes of air pollution.
- Apply some measures to protect the air environment.

1.2 General Abilities

1. Autonomy, self-study: Actively and actively learn about the properties, composition, and applications of oxygen and air
2. Problem-solving capacity, creativity: Discuss with group members to solve problems in the lesson to complete learning tasks.
3. Capacity to communicate and cooperate: Working effectively in groups, ensuring that all members of the group participate in activities.

2. Qualities

- Hardworking: Persevering, actively exploring and creating learning tasks of groups and individuals given by the teacher; Enthusiasm and interest in exploring and learning the natural sciences.
- Honesty: Describe the correct process: state the correct phenomenon, comment on the recorded phenomenon; specify whether you have performed yourself or with the assistance of others for an experiment on the burning properties of oxygen and an experiment to determine the composition of oxygen in air.
- Responsibility: Complete the group's work as well as your own during the learning process.

II. Teaching equipment and learning materials

- Lesson plans, electronic lectures, study cards.
- Laboratory instruments: Conical flask containing oxygen gas, Firesticks, Glass basin, 4 grilles, Candle, Glass cup, Styrofoam or piece of wood
- Chemistry: Water, Phenolphthalein, NaOH
- Video links:
- Oxygen test to maintain Combustion https://www.youtube.com/watch?v=z7zCjYcnMZY
- Experiment of burning iron in air and in oxygen https://www.youtube.com/watch?v=TkE1uVjrY0w

III. Teaching process

Activity 1: Introduction (5 minutes)

a. Target

- Stimulate interest, create a comfortable mood and approach the lesson content.
- Mobilize students' knowledge about oxygen that students have learned in Grade 4 Science.

b. content

Students look at the pictures and answer the questions.

c. Product

1. The ventilator helps to provide oxygen to the patient and release carbon dioxide. The patient had to be on a ventilator because he was infected with Covid 19, so his lungs were damaged, leading to difficulty in breathing on his own and lack of oxygen.
2. Scuba divers' tanks, oxygen generators into fish tanks...

d. Organize activities

- The teacher let the students observe the image of a patient infected with Covid 19 who had to use a ventilator and asked the students to answer 2 questions in turn.

1. What gas does the patient use the ventilator to provide? Why?
2. Can you find other examples of using oxygen in real life?

- *Teacher introduced to enter the lesson: One can fast for 3 weeks, without drinking for 3 days but cannot hold his breath for more than 3 minutes.*

Activity 2: Forming new knowledge

Activity 2.1: The nature and importance of oxygen (7 minutes)

a. Target
Name some properties of oxygen.
- The importance of oxygen for life, combustion and fuel combustion.

b. Content
1/ Students mobilize their knowledge (learned in science grade 4) and their understanding to answer the question: Tell me what you know about oxygen? (Physical properties; Importance)
2/ Watch the video of the oxygen test to maintain the combustion.

c. Product
a. State the properties of oxygen: A gas, colorless, odorless, tasteless and sparingly soluble in water.
b. The importance of oxygen:
- Oxygen needed for life on Earth:
+ Is the most important component for the respiratory activities of humans, animals and plants;
+ Oxygen is everywhere in the air; in water and in soil.
Thanks to oxygen, life on earth can be maintained.
- Oxygen with combustion and fuel combustion: Maintain combustion; To have a fire, it is necessary to provide heat for the combustible substance (initiator). The combustion process gives off heat and glows. The more oxygen there is, the more intense the combustion and the more heat is released.
2/ Experiment: When a fire-stick with red remains is put into test tube 2, it ignites. When burning glow and give off heat (warm up)
The teacher notes that the students still have red remnants of the firefly stick, which is the trigger (providing initial heat).
d. Organize learning activities
- Call on students to present the properties and importance of oxygen (For students to study first at home, come to class to present because this knowledge was also learned in science grade 4).
- Teacher organizes for students to see an experiment to prove that oxygen maintains combustion. Give comments and explanations.
- Teacher asks students to ask questions in the opening picture in the lesson "What gas tank does a diver wear when diving into the sea?" and ask students to read more in the section Do you know about the role of compressed oxygen on page 37 of the textbook.

Activity 2.2: Learn about the composition of the air (20 minutes)

a. Target
State the composition of air.
- Conduct a simple experiment to determine the volume percent composition of oxygen in air.

b. Content
Working group experiments to determine the composition of oxygen in the air as shown in Figure 7.2. in the textbook

c. Product
Description of the phenomenon: When lighting the candle, the candle burns until it goes out, then the water level rises to occupy the 1st line (about 1/5 of the cup's space), from which the oxygen accounts for about 1/5 of the empty volume. gas.

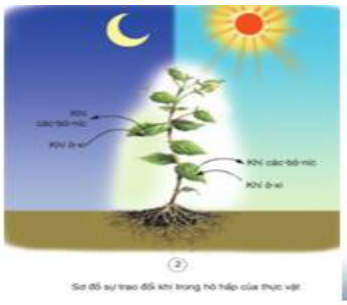
d. Organizing learning activities (following the 5E model)
Teacher gives students learning activities in divided groups.

Phase 1: Bonding
o – The teacher asked the question: “Is there any other gas in the composition of the air besides oxygen? If there are other gases, what percent of the volume of the air is oxygen?"
o – Students can recall knowledge in science grade 4, in addition to oxygen, the air also contains nitrogen, dust, etc.
- The student's answer is right or wrong is not important at this stage. The main goal is to mobilize students' known knowledge and stimulate students' exploration and discovery of the problem to be researched.

Phase 2: Explore
- Teachers organize for students to do experiments in groups; guide students to describe observed phenomena or they can write pre-written study sheets according to the form for students to fill in information for convenience.
- For this experiment to be successful, it is necessary to pay attention to instructing students on how to do it, as follows:
+ B1. Prepare a glass basin, put about 1 liter of water into the pot, then add a few tablets of caustic soda (NaOH) or concentrated NaOH solution, stir well until the caustic soda dissolves completely to form a dilute alkaline solution (you can add a few drops of phenolphthalein to the solution). The fluid is pink for easy observation).
+ B2. Prepare a piece of Styrofoam or a small piece of wood, stick it for the small candle stick to stick on the surface of the Styrofoam or a piece of wood and place it in a glass pot. Place the beaker in and mark the water level.
+ B3. Turn the cup upside down and light the candle on the top to burn, then quickly turn the cup upside down.
+ B4. After the candle goes out, observe how much of the column of air in the cup rises to the water level.
- Teacher asks students to fully record the observed experimental phenomenon and answer the questions:
When the candle goes out, why does the water rise? Can we deduce the ratio of the volume of oxygen in the air and how?

Phase 3: Explain
- Teacher asks each group to present the problems they have done.
- Students answer the question: Because when a candle burns, only oxygen burns, when burned, it produces carbon dioxide gas, which dissolves in a dilute alkaline solution, causing the pressure to decrease, so the water rises.
Oxygen occupies 1/5 of the volume or about 20%, so oxygen makes up about 20% of the volume of air.

Phase 4: Expansion
- Teacher: “So what is the gas left in the glass after the candle goes out? Does that gas sustain combustion?”
- The teacher showed the students an image of a glass of cold water and an image of the respiratory photosynthesis of green plants (students studied in science grade 4) and asked questions:
1/ There are tiny drops of water on the outside of the glass of cold water, is that water from the inside of the glass seeping out?
→The water droplets clinging to the outside of the glass are caused by the water vapor in the area surrounding the glass wall when it gets cold and condenses into water. There is water vapor in the air.
What gases do plants need during photosynthesis and respiration?
Oxygen and carbon dioxide Carbon dioxide is present in the air.



- Teacher asks students to make conclusions about air composition.
- Additional teacher: By experiment, it was determined that oxygen accounts for 21%. The experiment we do simply determines only about 20%.
Phase 5: Evaluation
- The teacher asked the question: "There is 21% oxygen in the air, so are the physical properties of air and oxygen the same? Please comment on the importance of air.
Oxygen and air have similar physical properties: both are in the gaseous state, colorless, odorless, tasteless, slightly soluble in water. Air sustains life and fire.

Activities 3: Project Implementation

a. Target: Guide students to implement projects and report products.

b. Content: Teams select projects, execute projects, and report products.
c. Product
- Research-oriented questions.
- Project products.
- Report on group activities during project implementation.

d. Organizing learning activities:

Activity 3.1: Guide students to plan projects (18 minutes)

- The teacher raised practical problems related to the project to be researched: Currently, the situation of air pollution is getting worse and worse. In Vietnam, Hanoi and Ho Chi Minh City are two cities in the top of the most polluted cities in the world. That is alarming news. Air pollution negatively affects the natural world and human health. Therefore, we need to find out the role of the air, the causes of air pollution, and what the consequences are in order to find remedial measures.
Projects for students to choose from:
Project 1: The role of air in nature and people.
Project 2: Causes and consequences of air pollution.
Project 3: Some measures to protect the air environment.
Project 4: Air pollution in the locality where you live.

Activities of teachers	Activities of students	The porch of the natural inquiry capacity
- Teacher introduces the projects. - Divide students into groups, let groups choose projects (may be in the form of lots, or agreement on assignment between groups).	- Students listen to introduce the topic DA. - Discuss and decide on project selection.	
- The teacher suggests research questions and guides groups to plan the implementation of the project.	- Proposing research questions for the DA. - Outline project implementation plan.	- Detecting problems, asking questions to find out.
- State the evaluation criteria for project products.	The groups discuss, understand and agree on the evaluation criteria for the DA products.	

Activity 3.2: Project Implementation – Finishing Product (Performed in 1 week outside of class time)

Activities of teachers	Activities of students	The porch of the natural inquiry capacity
- Monitor and understand the project implementation status of the groups. - Consulting, helping groups when needed to ensure the progress of the project. It is possible to suggest students to conduct research-oriented questions. - Ask the group leaders to report on the progress and results of the group, and the teacher gives suggestions for the groups to continue to improve the product (if necessary).	- Team leader assigns tasks to members to implement the project according to the outlined plan. Contact teachers and group members when they need advice and support. - Regularly contact, coordinate and provide information and data obtained to the team leader and secretary. - NT organizes for members to discuss, synthesize and process information: analyze, select, arrange, and describe data in the form of tables and diagrams. - NT and members prepare content, structure, illustrations, product report form	- Analysis identifies the relationship between relevant knowledge and problems in learning and problems in practice. - Select the appropriate method to learn. - Develop a research implementation plan - Follow the set plan. - Analyze and interpret data and draw conclusions.

Activity 3.3: Report results (60 minutes)

Activities of teachers	Activities of students	The porch of the natural inquiry capacity
- Organize, guide and monitor groups of students to report project results (each group presents for 7-10 minutes. Then each group has 5 minutes for teachers and other groups to ask questions to discuss what to do). clear. - Teacher controls the process of students discussing and making final comments.	- Representatives of groups of students report results, project products, other groups monitor and discuss. - Team members collaborate to present, illustrate or supplement and clarify project ideas. - Students in other groups raise questions or comments. - Answer questions from other groups, ask for clarification, ask other groups questions. - The secretary summarizes the comments.	- Show the results. - Expand the application of knowledge into practice.

Hoạt động 3.4 Activity 3.4: Evaluation (20 minutes) (20 phút)

Activities of teachers	Activities of students	The porch of the natural inquiry capacity
- Ask the groups to edit and complete the content of the group's report. - Distributing self-assessment sheets of products and evaluating the development of renewable energy.	- Edit and complete the content of the group's report. - Groups of peer assessment, research products and self-assessment of LLP.	

Activity 4: Practice, use (10 minutes)

a. Target

Deepen knowledge and skills about the properties and importance of oxygen and air. Air pollution and measures to protect the air environment.

b. Content

- Students answer questions and exercises.

c. Product

Question 1: Raising ornamental fish in a glass tank or raising shrimp in a lagoon must use an oxygen aerator.
Question 2: Iron burns more intensely in oxygen than in air because oxygen makes up only 21% by volume.
Question 3: Because plants that carry out photosynthesis give off O2 as a waste product. Thanks to that, oxygen is always provided.

d. Organize learning activities

- Teacher system of lessons by mind map.
- Teacher asks students to discuss in pairs and answer the following questions:

Question 1: Which phenomenon in practice shows that oxygen is sparingly soluble in water?
Question 2: Observe the experiment of iron burning in air and in an oxygen tank. Compare the phenomenon of 2 experiments and explain.
Question 3: Please explain why the amount of oxygen in the air is almost constant even though people use a lot of oxygen every day for respiration and industrial production.

- Teacher calls students to answer, other students' comment. The teacher evaluates and closes the answers.

IV. Appendix

1. Research questions of projects

Project research question 1
The role of air for nature and people 1. State the composition of air. 2. The role of each major component in the air for nature and humans. a) The role of oxygen b) The role of nitrogen c) The role of carbon dioxide d) The role of steam.
Project research question 2
Air pollution 1. What is air pollution? 2. Sources of air pollution? What are the air pollutants? 3. List some human activities that cause air pollution. 4. Some effects of air pollution on human health.
Project research question 3
Some measures to protect the air environment 1. List some measures to protect the air. 2. Proposing actions to contribute to reducing air pollution. 3. To assess the level of air pollution, people often use which scale? Show that scale.
Project research question 4
Find out the current situation of air pollution in the locality 1. Find out if there are factories or workshops in the locality. 2. Find out the situation of air pollution in the area where there are factories and production workshops. 3. Assessment of local people's awareness of air environment protection. 4. What measures have been taken locally to improve and protect the air environment.

3. Conclusion

The article has presented the theoretical and practical basis of applying the 5E teaching model in teaching Natural Science in junior high schools. In Vietnam, the 5E teaching model has been initially applied to science topics or STEM projects. Teaching practice shows that it is feasible to apply the 5E teaching model to teaching in high schools. Hopefully, the article will be a reference for teachers when applying this model to teaching in junior high schools at home and abroad.

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